The Masked Politic

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Business Proposal

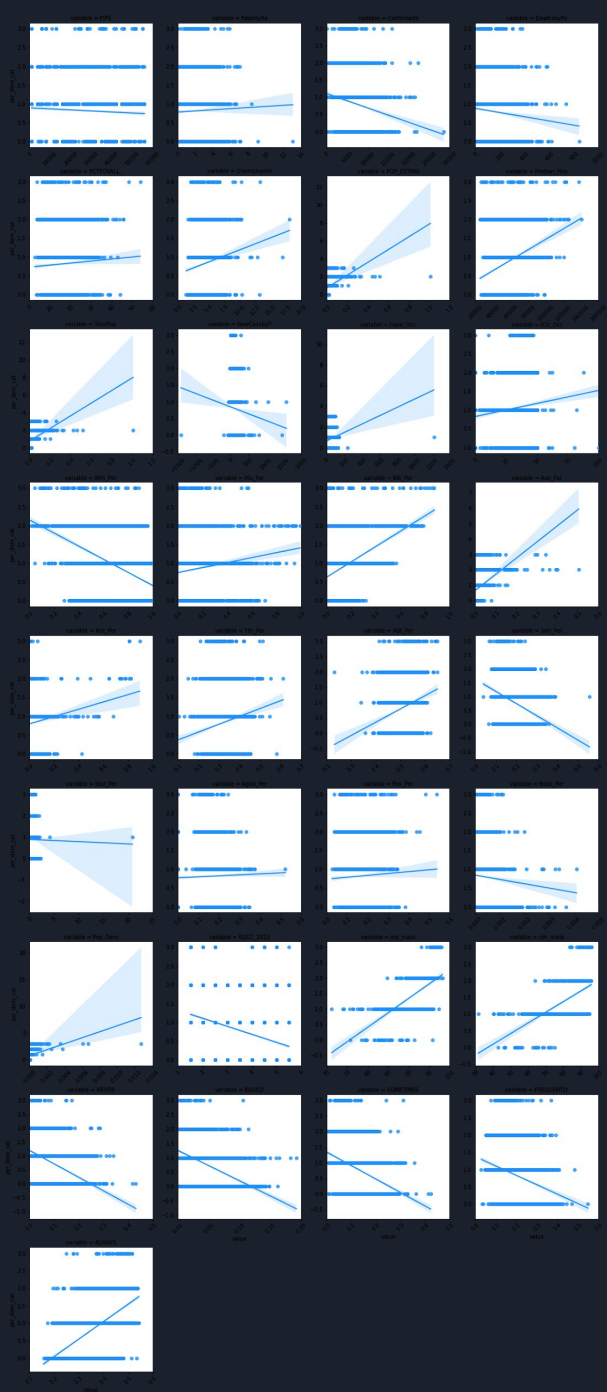
- Political polling has fallen short
- It’s becoming increasingly difficult to reach representative voter samples
- Fund a larger scale survey pipeline for COVID mask compliance

Data Collection

- Survey conducted by Carnegie Mellon on Mask Wearing
- Survey conducted by New York Times on Mask Wearing
- Database of COVID maintained by Johns Hopkins
- Election Data from Kaggle

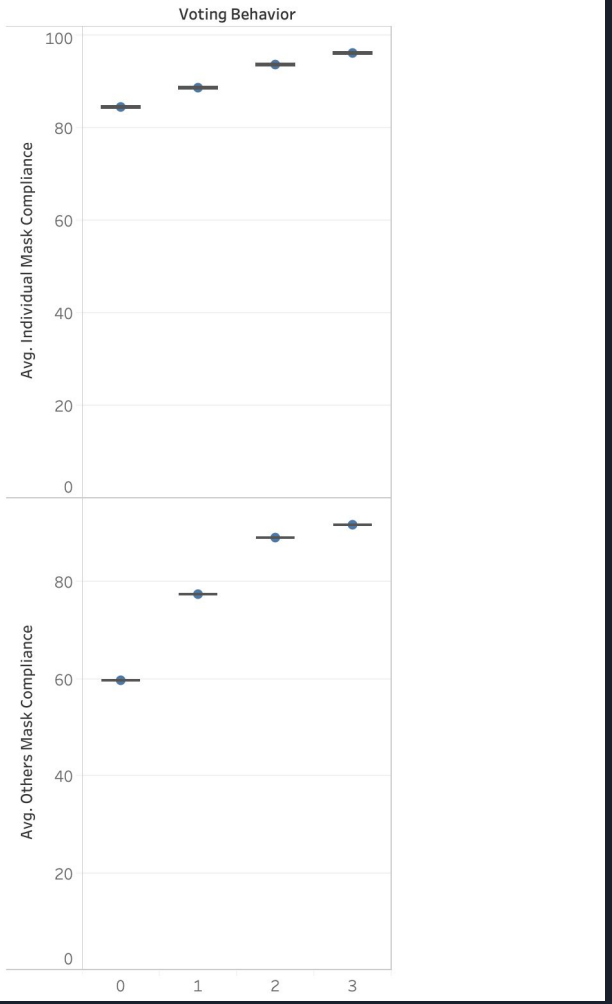
EDA

Explore relationship between features and voting behavior



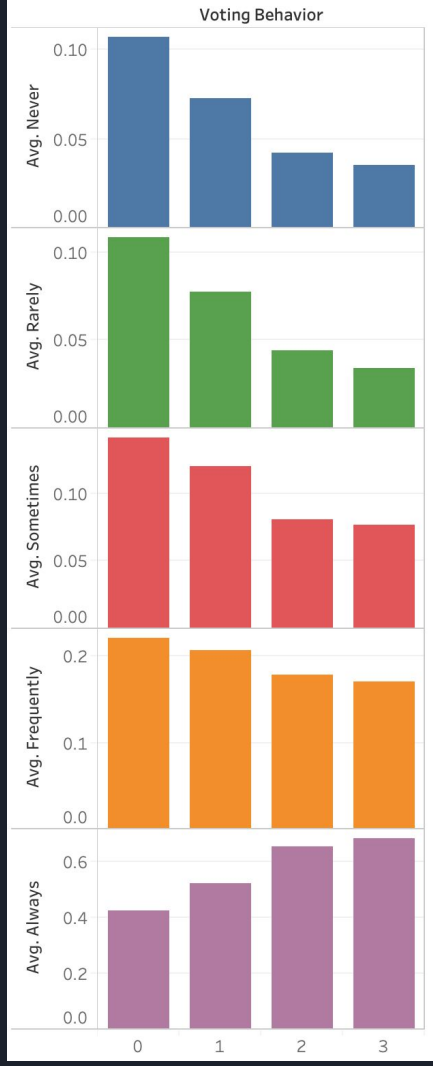
Carnegie Mellon Data

Mask Compliance Percentage vs. Voting Behavior



New York Times Study

Mask Wearing Behavior vs. Voting Behavior



Modeling

- Train/Test Split, Scaling, SMOTE
- Created functions for quick model evaluation
- Parallel tests on datasets with and without features on mask compliance
- Different classifier models used with GridsearchCV:
  - Random Forest
  - XGBoost
  - Logistic Regression
- Each model was evaluated with a weighted-F1, Accuracy, and ROC/AUC Score

Results

	F1 Score		Accuracy		ROC/AUC	
Random Forest	0.552	0.692	0.497	0.662	0.733	0.838
XGBoost	0.711	0.781	0.682	0.764	0.801	0.889
Logistic Regression	0.599	0.716	0.541	0.682	0.739	0.82

Analysis

There is a boost in model performance for all tested metrics in all tested models by adding mask data

XGBoost was the strongest performing of our models

It is our recommendation that mask data be used in a model predicting on the 2020 U.S. Presidential Election

It’s effectiveness at predicting future elections is untested

Next Steps

Test on future presidential/midterm elections

Utilize effective imputation methods

Study changing politicization of the pandemic

Model with NYT data to show the modeling value of using all counties

Secure job with Nate Silver

Thank You!

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